Rhode Island Department of Health
Divisions of Facilities Regulation and Disease Prevention and Control

Frequently Asked Questions Regarding Pre-Employment Immunization and Testing for Health Care Workers

BACKGROUND: The Rhode Island Department of Health's *Rules and Regulations Pertaining to Immunization, Testing, and Health Screening for Health Care Workers (R23-17-HCW)* define the minimum requirements for pre-employment immunizations and disease testing for new ~~employees~~ health care workers starting work in licensed health care facilities and also define the minimum requirements for **all** employees regarding vaccinations against seasonal influenza**.** The language in the regulations is based upon the most current Centers for Disease ~~Prevention and Control's~~ Control and Prevention (CDC) publications on communicable disease screening and the immunization of health care workers (see references).

This document is intended to be a technical guide to assist health care practitioners in screening individuals in accordance with regulatory requirements, and to clarify some frequently asked questions. The intent of this document is not to replace medical practice standards or the execution of medical judgement in an individual case. The broad goal of ~~such activities~~ these regulatory requirements is to ensure that new ~~employees~~ health care workers in the health care industry remain free of the communicable diseases cited in the regulations, to protect them and the public from the consequences of possible workplace exposures, and the transmission of these diseases and that all health care workers annually are offered vaccination against seasonal influenza. ~~The Rhode Island Department of Health, *Health Care Worker Record of Immunizations and Testing* form accompanies the regulations. This document is to be completed by the health care practitioner providing immunization and testing or for transcribing information from previous records.~~

~~Employers who are licensed as~~ Health care facilities, such as hospitals and nursing homes, may choose to utilize employee health services staff, or contracted occupational health ~~contracted~~ services, or their own nursing staff to screen their ~~new employees~~ health care workers and to offer annual vaccinations against seasonal influenza for all health care workers. Alternatively, they may ask the prospective ~~employee~~ health care worker to obtain the required screening from an independent provider.

Tuberculosis

A health care worker must present evidence-based certification that he/she is free of active tuberculosis prior to employment. Documentation of the following tests ~~are~~ is acceptable:

1. ***A negative two-step tuberculin skin test using purified protein derivative (PPD).*** A two-step test is defined as the application and reading of two consecutive PPD tests. Optimally, the second PPD should be administered 1-3 weeks after the first. The maximum allowable interval between the first and the second dose cannot be more than 365 days for it to qualify as a two step procedure. This is based on the principle of the booster phenomenon. A positive PPD tests can revert to negative with waning immunity over a long time period. The first PPD therefore is used to jog (or boost) immune memory and the second is the true result. The interval between the first and second is ideally 1 to 3 weeks, but the booster response to immune memory may last as long as one year after the first or boosting PPD.

2. For a worker who can present documented negative serial consecutive tuberculin testing results for the prior two (2) years or more, a single baseline negative tuberculin test result is sufficient evidence of absence of TB infection. This is based on the principle that the prior tests have already boosted any latent immune memory and a two-step test is not necessary to induce the booster phenomenon.

3. Results of a negative test using a FDA (Federal Drug Administration) approved blood assay for Mycobacterium tuberculosis (BAMT) such as the QuantiFeron Gold may be used instead of PPD testing to document absence of TB infection.

~~2.~~ 4. ***The health care worker with a history of a positive PPD skin test result in the past*** (or positive BAMT) is required to present proof that he/she is currently free of active disease. Such proof may include:

a) Physician documentation of a negative chest X-ray at the time the PPD (or BAMT)was first read/reported positive, accompanied by physician certification that the person is currently free of signs and symptoms of active TB. NOTE: Such a chest x-ray may be completed at any time prior to hire, provided that it is accompanied by a physician certification that the health care worker is currently free of signs and symptoms of active disease. **OR**

b) In the absence of a negative chest X-ray at the time the PPD (or BAMT) was first read/reported as positive, a chest X-ray should be documented as negative before the person can start work. This X-ray must be done at any time prior to hire provided it is after the PPD was first noted to be positive and the person currently remains symptom free. **OR**

c) Physician certification of (1) the completion of a course of prophylactic therapy for latent TB infection, or completion of therapy for active disease in the past and (2) that the person currently remains symptom free. **OR**

d) Physician certification that the health care worker is currently free of active TB disease based on his/her clinical assessment. Because there can be many complex clinical scenarios with TB infection and disease, the practitioner may exercise judgement in certifying a person free of infectious TB.

What does one do with an individual who has a positive reaction or BAMT***?***

In the event that during pre-employment screening the PPD skin test is positive (first or second step) or BAMT, the health care worker must be referred to a physician to rule out the possibility of active tuberculosis before the health care worker may begin to work in a health care facility. Also if the prospective health care worker presents written evidence of a positive PPD or positive BAMT (for example, as a result of testing relative to immigration requirements), but has not had a physician assessment for this problem, the person must be referred to a physician to rule out active disease prior to employment. If the health care worker is uninsured, she/he may be referred to the Rhode Island Department of Health's tuberculosis clinic at 401-793-2427**.**

All post-employment PPD testing must conform to the OSHA rule requiring an institution-specific plan per CDC's most current "Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health Care Facilities."

When can the health care worker start work?

A health care worker who has ***never had a PPD test:*** If the first test result is negative, the health care worker may begin to work immediately, but the second PPD must be administered between one and three weeks after the first PPD. Note that if the first test is positive a second test must **not** be done, instead follow procedure in #2 above.

A health care worker who has had ***one previous negative PPD test:*** If a health care worker ~~brings in~~ provides a negative test result from a previous test, the test result can count as the first step. A second PPD test can now be applied provided the interval between the first and second test is no more than 365 days and no less than 7 days. The facility must ensure that the health care worker's second step PPD is negative prior to the health care worker's commencing work in the facility. Thus, a health care worker with a negative PPD prior to employment can only count it as the initial step if it was given within 365 days of the new employment PPD.

A health care worker who has had prior serial testing, that are negative for the prior two (2) consecutive years or more, may have the baseline PPD planted (for the new employment venue) and may begin work immediately. This is based on the principle that the prior tests have already boosted any latent immune memory and a two-step test is not necessary to induce the booster phenomenon.

Measles, Mumps, and Rubella

Before a new health care worker may work in a health care facility, evidence of immunity to measles, mumps, and rubella must also be presented. Five to ten percent (5-10%) of health care workers born prior to 1957 are not likely to be immune to measles or mumps or rubella, therefore it is ~~recommended~~ required that ~~vaccination be offered to~~ this population of health care workers receive one dose of a measles, mumps and rubella containing vaccine or have serologic evidence of acquired immunity. ~~The following evidence is acceptable:~~

1. ***Documented record of Measles, Mumps and Rubella vaccination***

Health care workers born on or after January 1,1957 must present evidence of two doses of a live viral vaccination with measles and mumps vaccine, administered at least 4 weeks apart, with the first dose being administered after the first birthday. There is a grace period of 4 days, so a vaccine dose received 4 days prior to the first birthday is acceptable. Two doses of MMR vaccine will satisfy compliance with this requirement. In the instance where reliable records of single antigen vaccination are available, there is a single dose requirement for ~~mumps and~~ rubella, but a two-dose requirement for measles and mumps.

A documented record of immunization includes, but is not limited to, an official immunization record card, or a copy of a medical record indicating administration of vaccine, or school immunization record, or medical passport, or a World Health Organization immunization record, or the Rhode Island Department of Health's "Medical Record of Adult Vaccination and Testing."

2. ***Serologic evidence of immunity to Measles, Mumps and Rubella in a person with documented single dose of MMR***

A standard serologic test performed at any time prior to employment and interpreted as showing evidence of either past infection or vaccination for measles, mumps and rubella is acceptable, in a person with evidence of one prior dose of MMR.

If the health care worker does not meet the above requirements when can the health care worker start to work?

1. If the worker has no documentation of MMR vaccine and the health care worker receives **MMR** (measles, mumps, and rubella) vaccine, the health care worker may begin to work after receiving the first dose of vaccine. The second dose can be administered at a minimum interval of 4 weeks after the first or as soon as is feasible thereafter. This is the optimal recommended option.

2. If the worker has no documentation and wants to have blood tests done, then the blood test results for measles, mumps and rubella must be positive before the worker can start work. If any one of these is negative, they must be vaccinated prior to work (first dose of two doses if measles or mumps is negative).

3. If the health care worker has one documented MMR vaccination and wishes to have a **blood test** (IgG titers) to determine immunity to measles or mumps in lieu of a second vaccination, then the blood test results for measles and mumps must come back and be positive for immunity before the health care worker may start to work. This testing usually takes 24--48 hours. If the blood test (titer) is positive, it indicates that the health care worker is immune to measles and mumps and the health care worker may start to work. If the blood test (titer) is negative, it indicates that the worker is not immune, then the health care worker must receive the MMR vaccine before he/she may begin to work.

4. If the health care worker presents a medical exemption from this vaccination requirement, the risks and benefits of working in a particular health care setting must be discussed with the health care worker and appropriate accommodations made. If the exemption results from a temporary condition such as pregnancy and provided the worker voluntarily, and with consent, reveals this information to the employer, an attempt should be made to meet the immunization requirements, when the period of exemption is over.

PPD and MMR Interaction

The MMR vaccine can significantly interfere with the body's ability to react to PPD for up to 4 weeks after vaccination. Because of this, the two-step PPD testing should be completed before the MMR vaccination ~~can be~~ is given. For example, administer the first PPD, wait one week and then administer the second PPD. When the health care worker returns to have ~~this~~ the PPD read, administer the first MMR. At this stage the health care worker may start to work. The health care worker in this example had to wait approximately 10 days before beginning to work. However, if ~~an employee~~ a health care worker has to receive a single dose of PPD for pre-employment testing, both the PPD and MMR may be administered on the same day.

Hepatitis B Vaccine

Hepatitis B vaccinations shall be made available at no cost to all ~~employees~~ health care workers who have occupational exposure to blood within ten (10) working days of assignment, ~~at no cost~~, at a reasonable time and place, under the supervision of licensed physician/licensed healthcare professional and according to the latest recommendations of the ~~U.S. Public Health Service (USPHS)~~ Advisory Committee on Immunization Practices (ACIP). Prescreening may not be required as a condition of receiving the vaccine. ~~Employees~~ Health care workers must sign a declination form if they choose not to be vaccinated, but may later opt to receive the vaccine at no

cost to ~~the employee~~ them. Should booster doses later be recommended by the ~~USPHS~~ ACIP, ~~employees~~ they must be offered ~~them.~~ to health care workers.

The ~~current series~~ recommended schedule consists of a 3 dose series administered as two doses at least 4 weeks apart followed by a third dose optimally five months after the second dose~~, though a minimum interval of 2 months between dose 2 and dose 3 is acceptable.~~ Alternative timing options for vaccination include 0, 2, 4 months and 0, 1, 4 months (overall there must be at least 16wks between the first and the third dose). Note that these are **minimum** intervals between doses and any interval longer than these between doses is acceptable without a need to re-start or repeat a dose. A titer to confirm sero-conversion is recommended 1 to ~~3~~ **2** months after the ~~last~~ final dose. ~~Persons~~ Health care workers failing to sero-convert should be offered a repeat 3 dose series with follow up titers and a physician consultation. ~~Employees~~ Health care workers have the option of signing a standard OSHA declination form if they choose not to be vaccinated with Hepatitis B vaccine.

Tetanus, Diphtheria, and Pertussis: Tdap

What are the most current Advisory Committee on Immunization Practices (ACIP) recommendations for Tdap immunization and health care workers?

Health-care workers who work in hospitals or ambulatory care settings and have direct patient contact should receive a single dose of Tdap as soon as feasible if they have not previously received Tdap. Priority should be given to vaccination of health care workers with direct contact with infants aged <12 months. An interval as short as two (2) years from the last dose of Td is recommended for the Tdap dose. Other health care workers (i.e., those who do not work in hospitals or ambulatory care settings) should receive a single dose of Tdap according to the routine recommendation and interval guidance for use of Tdap among adults. However, these personnel are encouraged to receive the Tdap dose at an interval as short as 2 years following the last Td. Hospitals and ambulatory care facilities should provide Tdap for health care workers and use approaches that maximize vaccination rates including education about the benefits of vaccination, convenient access, and provision of Tdap at no charge. http://www.cdc.gov/nip/vaccine/tdap/tdap_adult_recs.pdf

Varicella (Chicken pox)

ACIP's Frequently Asked Questions and Answers about Varicella and Health Care Workers http://www.cdc.gov/nip/vaccine/varicella/faqs-clinic-vac-hcw.htm

1. ***Does ACIP recommend varicella immunization of health care workers?***

ACIP recommends that all health care workers ensure that they are immune to varicella, since nosocomial transmission of varicella is well-recognized. Varicella immunization is particularly recommended for susceptible health care workers who have close contact with persons at high risk for serious complications, including a) premature infants born to susceptible mothers, b) infants who are born at < 28 weeks of gestation or who weigh < 1,000 g at birth (regardless of maternal immune status), c) pregnant women and d) immunocompromised persons. For more information, visit the following site: ftp://ftp.cdc.gov/pub/Publications/mmwr/RR/RR4511.pdf

2. ***Should health care workers be tested for VZV immunity prior to vaccination?***

Data available to date indicate that in the health care setting, a positive history of disease is a reliable predictor of positive immune status. Among tested health care workers > 97-99% of those with a positive history had antibodies when tested. Health care workers who do not have a convincing

history of prior varicella should be considered susceptible and serological testing can be offered to determine immune status. Serologic screening of adults with a negative or uncertain history is cost-saving compared with vaccinating all those without a definite history, because 70% to 90% are actually immune when tested. Health care workers from tropical climates are more likely to be susceptible to varicella as adults than persons born in the U.S. For ensuring that health care workers assigned to high risk patients are immune, health care facilities may elect to do serology testing for all such health care workers irrespective of disease history.

3. ***Should health care workers be tested after vaccination to ensure that they are immune?***

The ACIP does not recommend routine testing for varicella immunity after two (2) doses of vaccine because 99% of adults seroconvert after two doses of vaccine. Additionally, there are difficulties interpreting negative lab tests post-vaccination since commercially available tests may not be sensitive enough to detect low levels of antibody post-vaccination. For institutions that choose to do post-vaccination testing, it is suggested that if EIA tests are used for initial screening post-vaccination, then further tests should be conducted on those with negative results using a more sensitive test (e.g.FAMA (flourescent antibody-to-membrane antigen), latex agglutination).

4. ***How should vaccinated health care workers be managed after exposure to natural varicella?***

Hospitals should develop guidelines for management of vaccinated health care workers who are exposed to varicella. Seroconversion after varicella vaccination does not always result in full protection against disease. Therefore, the following measures should be considered for health care workers who are exposed to natural varicella: a) serological testing for varicella antibody immediately after VZV exposure; b) retesting 5-6 days later to determine if an anamnestic response is present; and c) possible furlough or re-assignment of health care workers who do not have detectable antibody.

5. ***Should health care workers be furloughed if they develop a rash after vaccination?***

ACIP suggests that hospitals develop their own policies for managing rash post-vaccination. Uncontrolled trials suggest that approximately 3% of adults develop a varicella-like rash (with a median of 2 lesions) at the injection site, and approximately 5.5% develop a generalized rash (median 5 lesions) 2-6 weeks following the first dose of vaccine. The risk of any rash is much lower after the second dose (<1%). The rash may be atypical for varicella with macules or papules rather than vesicles. Health care workers who develop a rash should be evaluated by the occupational health service at the hospital or health care facility where they work and managed according to hospital policy.

6. What policies have hospitals developed for managing post-vaccination rash in health care workers?

Two large university hospitals (Columbia Presbyterian Medical Center in New York City and Stanford University Hospital in Palo Alto) have instituted the following policy: a) Health care workers are instructed that they may develop a rash 2-6 weeks after vaccination and that this rash may be either a localized rash at the site of vaccination or a diffuse varicella-like rash. Either rash may be atypical with macules or papules rather than vesicles. Health care workers are instructed to report immediately to the occupational health office if a rash develops. b) Health care workers with either an injection site rash or a generalized rash are furloughed until the rash resolves (usually in 2-3 days). The occupational health office verifies that the rash has resolved and they are not potentially infectious to others before allowing the health care worker to resume patient care duties.

Seasonal Influenza:

What are CDC's influenza vaccine recommendations for health care workers?

All health-care workers should be vaccinated against influenza annually. Facilities that employ health-care workers are strongly encouraged to provide vaccine to workers by using approaches that maximize vaccination levels. An improvement in vaccination coverage levels might help to protect health-care workers, their patients, and communities; improve prevention of influenza-associated disease and patient safety; and reduce disease burden. Influenza vaccination levels among health-care workers should be regularly measured and reported. Although vaccination levels for health-care workers are typically <40%, with moderate effort, organized campaigns can attain higher levels of vaccination among this population. In 2005, seven states had legislation requiring annual influenza vaccination of health-care workers or the signing of an informed declination, and 15 states had regulations regarding vaccination of health-care workers in long-term--care facilities. Physicians, nurses, and other workers in both hospital and outpatient-care settings, including medical emergency-response workers (e.g., paramedics and emergency medical technicians), should be vaccinated, as should employees of nursing home and chronic-care facilities who have contact with patients or residents http://www.cdc.gov/flu/professionals/vaccination/hcw.htm .

Where can I find more information about about flu vaccine?

Flu vaccination resources for health care professionals and frequently asked questions and answers about flu vaccine are available at: http://www.cdc.gov/flu/professionals/vaccination/ and http://www.immunize.org/catg.d/p2021e.htm

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References:

Measles, Mumps, and Rubella -- Vaccine Use and Strategies for Elimination of Measles, Rubella, and Congenital Rubella Syndrome and Control of Mumps: Recommendations of the Advisory Committee on Immunization Practices (ACIP) at
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Notice to Readers: Updated Recommendations of the Advisory Committee on Immunization Practices (ACIP) for the Control and Elimination of Mumps Source: MMWR, June 9, 2006, Vol. 55(22):629-630 at http://www.cdc.gov/mmwr/PDF/wk/mm5522.pdf

Immunization of Health-Care Workers: Recommendations of the Advisory Committee on Immunization Practices (ACIP) and the Hospital Infection Control Practices Advisory Committee (HICPAC) at **http://www.cdc.gov/mmwr/preview/mmwrhtml/00050577.htm**

~~*Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Facilities*, 1994 at http://www.cdc.gov/mmwr/preview/ind94_rr.html~~

Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health-Care Settings, 2005. December 30, 2005 / 54(RR17);1-141
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm

Need more help?

For questions about Tuberculosis or PPD requirements, contact Linda Franco at: (401) 222-2577 or linda.franco@health.ri.gov.
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